

# Publications of Bjoern Andres

## Peer-Reviewed Journal Articles

- [1] E. Türetken, F. Benmansour, B. Andres, P. Głowacki, H. Pfister, and P. Fua, “Reconstructing curvilinear networks using path classifiers and integer programming,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 38, no. 12, pp. 2515–2530, 2016. DOI: 10.1109/TPAMI.2016.2519025.
- [2] J. H. Kappes, B. Andres, F. A. Hamprecht, C. Schnörr, S. Nowozin, D. Batra, S. Kim, B. X. Kausler, T. Kröger, J. Lellmann, N. Komodakis, B. Savchynskyy, and C. Rother, “A comparative study of modern inference techniques for structured discrete energy minimization problems,” *International Journal of Computer Vision*, vol. 115, no. 2, pp. 155–184, 2015. DOI: 10.1007/s11263-015-0809-x.
- [3] M. Rempfler, M. Schneider, G. D. Ielacqua, X. Xiao, S. R. Stock, J. Klohs, G. Székely, B. Andres, and B. H. Menze, “Reconstructing cerebrovascular networks under local physiological constraints by integer programming,” *Medical Image Analysis*, vol. 25, no. 1, pp. 86–94, 2015, **Medical Image Analysis Best Paper Award 2015 by the MICCAI Society**. DOI: 10.1016/j.media.2015.03.008.
- [4] B. Andres, U. Köthe, T. Kröger, M. Helmstaedter, K. L. Briggman, W. Denk, and F. A. Hamprecht, “3D Segmentation of SBFSEM Images of Neuropil by a Graphical Model over Supervoxel Boundaries,” *Medical Image Analysis*, vol. 16, no. 4, pp. 796–805, 2012. DOI: 10.1016/j.media.2011.11.004.

## Peer-Reviewed Conference Articles

- [1] P. Swoboda and B. Andres, “A message passing algorithm for the minimum cost multicut problem,” *CoRR*, vol. abs/1612.05441, 2016, (accepted at CVPR 2017). [Online]. Available: <http://arxiv.org/abs/1612.05441>.
- [2] E. Levinkov, J. Uhrig, S. Tang, M. Omran, E. Insafutdinov, A. Kirillov, C. Rother, T. Brox, B. Schiele, and B. Andres, “Joint graph decomposition and node labeling by local search,” *CoRR*, vol. abs/1611.04399, 2016, (accepted at CVPR 2017). [Online]. Available: <http://arxiv.org/abs/1611.04399>.
- [3] A. Kirillov, E. Levinkov, B. Andres, B. Savchynskyy, and C. Rother, “InstanceCut: from edges to instances with multicut,” *CoRR*, vol. abs/1611.08272, 2016, (accepted at CVPR 2017). [Online]. Available: <http://arxiv.org/abs/1611.08272>.
- [4] E. Insafutdinov, M. Andriluka, L. Pishchulin, S. Tang, E. Levinkov, B. Andres, and B. Schiele, “Articulated multi-person tracking in the wild,” *CoRR*, vol. abs/1612.01465, 2016, (accepted at CVPR 2017). [Online]. Available: <http://arxiv.org/abs/1612.01465>.
- [5] S. Tang, M. Andriluka, B. Andres, and B. Schiele, “(Confidential title),” in *CVPR*, (accepted), 2017.
- [6] T. Beier, B. Andres, U. Köthe, and F. A. Hamprecht, “An efficient fusion move algorithm for the minimum cost lifted multicut problem,” in *ECCV*, 2016. DOI: 10.1007/978-3-319-46475-6\_44.
- [7] E. Insafutdinov, L. Pishchulin, B. Andres, M. Andriluka, and B. Schiele, “DeeperCut: A deeper, stronger, and faster multi-person pose estimation model,” in *ECCV*, 2016. DOI: 10.1007/978-3-319-46466-4\_3.
- [8] E. Levinkov, J. Tompkin, N. Bonneel, S. Kirchhoff, B. Andres, and H. Pfister, “Interactive multicut video segmentation,” in *Pacific Graphics Short Papers*, E. Grinspun, B. Bickel, and Y. Dobashi, Eds., The Eurographics Association, 2016, ISBN: 978-3-03868-024-6. DOI: 10.2312/pg.20161332.
- [9] M. Rempfler, B. Andres, and B. Menze, “The minimum cost connected subgraph problem in medical image analysis,” in *MICCAI*, 2016. DOI: 10.1007/978-3-319-46726-9\_46.
- [10] I. Shcherbatyi and B. Andres, “Convexification of learning from constraints,” in *GCPR*, 2016. DOI: 10.1007/978-3-319-45886-1\_7.
- [11] F. Jug, E. Levinkov, C. Blasse, E. W. Myers, and B. Andres, “Moral lineage tracing,” in *CVPR*, 2016.

- [12] L. Pishchulin, E. Insafutdinov, S. Tang, B. Andres, M. Andriluka, P. Gehler, and B. Schiele, “DeepCut: Joint subset partition and labeling for multi person pose estimation,” in *CVPR*, 2016.
- [13] L. A. Royer, D. L. Richmond, C. Rother, B. Andres, and D. Kainmueller, “Convexity shape constraints for image segmentation,” in *CVPR*, 2016.
- [14] M. Keuper, E. Levinkov, N. Bonneel, G. Lavoué, T. Brox, and B. Andres, “Efficient decomposition of image and mesh graphs by lifted multicuts,” in *ICCV*, 2015. DOI: 10.1109/ICCV.2015.204.
- [15] M. Keuper, B. Andres, and T. Brox, “Motion trajectory segmentation via minimum cost multicuts,” in *ICCV*, 2015. DOI: 10.1109/ICCV.2015.374.
- [16] S. Tang, B. Andres, M. Andriluka, and B. Schiele, “Subgraph decomposition for multi-target tracking,” in *CVPR*, 2015. DOI: 10.1109/CVPR.2015.7299138.
- [17] M. Rempfler, M. Schneider, G. D. Ielacqua, X. Xiao, S. R. Stock, J. Klohs, G. Székely, B. Andres, and B. H. Menze, “Extracting vascular networks under physiological constraints via integer programming,” in *MICCAI, Student Best Paper Award, Runner-up (to Markus Rempfler)*, 2014. DOI: 10.1007/978-3-319-10470-6\_63.
- [18] J. Funke, J. N. P. Martel, S. Gerhard, B. Andres, D. C. Ciresan, A. Giusti, L. M. Gambardella, J. Schmidhuber, H. Pfister, A. Cardona, and M. Cook, “Candidate sampling for neuron reconstruction from anisotropic electron microscopy volumes,” in *MICCAI*, 2014. DOI: 10.1007/978-3-319-10404-1\_3.
- [19] B. Andres, J. Yarkony, B. S. Manjunath, S. Kirchhoff, E. Türetken, C. C. Fowlkes, and H. Pfister, “Segmenting planar superpixel adjacency graphs w.r.t. non-planar superpixel affinity graphs,” in *EMMCVPR*, 2013. DOI: 10.1007/978-3-642-40395-8\_20.
- [20] J. H. Kappes, B. Andres, F. A. Hamprecht, C. Schnörr, S. Nowozin, D. Batra, S. Kim, B. X. Kausler, J. Lellmann, N. Komodakis, and C. Rother, “A comparative study of modern inference techniques for discrete energy minimization problem,” in *CVPR*, 2013. DOI: 10.1109/CVPR.2013.175.
- [21] E. Türetken, F. Benmansour, B. Andres, H. Pfister, and P. Fua, “Reconstructing loopy curvilinear structures using integer programming,” in *CVPR*, 2013. DOI: 10.1109/CVPR.2013.238.
- [22] B. Andres, T. Kröger, K. L. Briggman, W. Denk, N. Korogod, G. Knott, U. Köthe, and F. A. Hamprecht, “Globally optimal closed-surface segmentation for connectomics,” in *ECCV*, 2012. DOI: 10.1007/978-3-642-33712-3\_56.
- [23] B. Andres, J. H. Kappes, T. Beier, U. Köthe, and F. A. Hamprecht, “The Lazy Flipper: efficient depth-limited exhaustive search in discrete graphical models,” in *ECCV*, 2012. DOI: 10.1007/978-3-642-33786-4\_12.
- [24] B. X. Kausler, M. Schiegg, B. Andres, M. Lindner, U. Köthe, H. Lette, J. Wittbrodt, L. Hufnagel, and F. A. Hamprecht, “A discrete chain graph model for 3D+t cell tracking with high misdetection robustness,” in *ECCV*, 2012. DOI: 10.1007/978-3-642-33712-3\_11.
- [25] J. Funke, B. Andres, F. A. Hamprecht, A. Cardona, and M. Cook, “Efficient automatic 3D-reconstruction of branching neurons from EM data,” in *CVPR*, 2012. DOI: 10.1109/CVPR.2012.6247777.
- [26] B. Andres, J. H. Kappes, T. Beier, U. Köthe, and F. A. Hamprecht, “Probabilistic image segmentation with closedness constraints,” in *ICCV*, 2011. DOI: 10.1109/ICCV.2011.6126550.
- [27] J. H. Kappes, M. Speth, B. Andres, G. Reinelt, and C. Schnörr, “Globally optimal image partitioning by multicuts,” in *EMMCVPR*, 2011. DOI: 10.1007/978-3-642-23094-3\_3.
- [28] B. Andres, J. H. Kappes, U. Köthe, C. Schnörr, and F. A. Hamprecht, “An empirical comparison of inference algorithms for graphical models with higher order factors using opengm,” in *DAGM*, 2010. DOI: 10.1007/978-3-642-15986-2\_36.
- [29] B. Andres, U. Koethe, A. Bonea, B. Nadler, and F. Hamprecht, “Quantitative assessment of image segmentation quality by random walk relaxation times,” in *DAGM*, 2009. DOI: 10.1007/978-3-642-03798-6\_51.
- [30] B. Andres, U. Köthe, M. Helmstaedter, W. Denk, and F. A. Hamprecht, “Segmentation of SBFSEM volume data of neural tissue by hierarchical classification,” in *DAGM, DAGM Award 2008*, 2008. DOI: 10.1007/978-3-540-69321-5\_15.

- [31] B. Andres, C. Kondermann, D. Kondermann, U. Köthe, F. A. Hamprecht, and C. S. Garbe, “On errors-in-variables regression with arbitrary covariance and its application to optical flow estimation,” in *CVPR*, 2008. DOI: 10.1109/CVPR.2008.4587571.
- [32] B. Andres, F. A. Hamprecht, and C. S. Garbe, “Selection of local optical flow models by means of residual analysis,” in *DAGM*, 2007. DOI: 10.1007/978-3-540-74936-3\_8.

## Peer-Reviewed Workshop Articles

- [1] S. Tang, B. Andres, M. Andriluka, and B. Schiele, “Multi-person tracking by multicut and deep matching,” *CoRR*, vol. abs/1608.05404, 2016, **Winner of the Multi-Object Tracking Challenge at ECCV 2016**. [Online]. Available: <http://arxiv.org/abs/1608.05404>.
- [2] M. Rempfler, M. Schneider, D. G. Ielacqua, T. Sprenger, X. Xiao, R. S. Stock, J. Klohs, G. Székely, B. Andres, and H. B. Menze, “Bildverarbeitung für die medizin 2015: algorithmen - systeme - anwendungen. proceedings des workshops vom 15. bis 17. märz 2015 in lübeck,” in H. Handels, M. T. Deserno, H.-P. Meinzer, and T. Tolxdorff, Eds. Berlin, Heidelberg: Springer, 2015, ch. Rekonstruktion zerebraler Gefäßnetzwerke aus in-vivo  $\mu$ MRA mittels physiologischem Vorwissen zur lokalen Gefäßgeometrie, pp. 161–166, ISBN: 978-3-662-46224-9. DOI: 10.1007/978-3-662-46224-9\_29.
- [3] U. Koethe, B. Andres, T. Kroeger, and F. A. Hamprecht, “Geometric analysis of 3D electron microscopy data,” in *Applications of Discrete Geometry and Mathematical Morphology*, ser. LNCS, U. Koethe, A. Montanvert, and P. Soille, Eds., vol. 7346, Springer, 2012, pp. 93–108. DOI: 10.1007/978-3-642-32313-3\_7.

## Book Chapters

- [1] C. S. Garbe, K. Krajsek, P. Pavlov, B. Andres, M. Mühlich, I. Stuke, C. Mota, M. Böhme, M. Haker, T. Schuchert, H. Scharf, T. Aach, E. Barth, R. Mester, and B. Jähne, “Nonlinear analysis of multi-dimensional signals,” in *Mathematical Methods in Signal Processing and Digital Image Analysis*, ser. Understanding Complex Systems, R. Dahlhaus, J. Kurths, P. Maass, and J. Timmer, Eds., Springer, 2008, pp. 231–288. DOI: 10.1007/978-3-540-75632-3\_7.

## Conference Proceedings as Editor

- [1] B. Rosenhahn and B. Andres, Eds., *Pattern Recognition, Proceedings of the 38th German Conference*, vol. 9796, ser. Lecture Notes in Computer Science, Berlin, Germany: Springer, 2016.

## Technical Reports

- [1] M. Rempfler, J.-H. Lange, F. Jug, C. Blasse, E. W. Myers, B. H. Menze, and B. Andres, “Efficient algorithms for moral lineage tracing,” *CoRR*, vol. abs/1702.04111, 2017. [Online]. Available: <http://arxiv.org/abs/1702.04111>.
- [2] M. Keuper, S. Tang, Z. Yu, B. Andres, T. Brox, and B. Schiele, “A multi-cut formulation for joint segmentation and tracking of multiple objects,” *CoRR*, vol. abs/1607.06317, 2016. [Online]. Available: <http://arxiv.org/abs/1607.06317>.
- [3] L. Qu and B. Andres, “Estimating maximally probable constrained relations by mathematical programming,” *CoRR*, vol. abs/1408.0838, 2014. [Online]. Available: <http://arxiv.org/abs/1408.0838>.
- [4] B. Andres, T. Beier, and J. H. Kappes, “Opengm: A C++ library for discrete graphical models,” *CoRR*, vol. abs/1206.0111, 2012. [Online]. Available: <http://arxiv.org/abs/1206.0111>.
- [5] B. Andres, U. Köthe, T. Kröger, and F. A. Hamprecht, “How to extract the geometry and topology from very large 3d segmentations,” *CoRR*, vol. abs/1009.6215, 2010. [Online]. Available: <http://arxiv.org/abs/1009.6215>.

- [6] —, “Runtime-flexible multi-dimensional arrays and views for C++98 and c++0x,” *CoRR*, vol. abs/1008.2909, 2010. [Online]. Available: <http://arxiv.org/abs/1008.2909>.